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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,687	07/15/2003	David T. Jennings III	BRI/018	8452

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EXAMINER

BLACKNER, HENRY A

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/619,687	Applicant(s) JENNINGS III, DAVID T.	
	Examiner Henry A. Blackner	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

1. CEN Document: prCEN/TS 13763-27 (NMP 898/FABERG N 0090 D/E) E 2002-06-19, paragraph 23, line 12.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show that pin 13 is grounded, figure 4, as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 18' (figure 2) and 21 (figure 3). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office

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action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informality: In the phrase “flag indicates whether or not the device has been *been* detected on the bus”, paragraph 46 lines 4-5; suggest deleting the duplicate term “been”, for clarity.

Appropriate correction is required.

Claim Objections

Claims 8, 10, 12-15, and 17-20 are objected to because of the following informalities:

1. In regards to claim 8, the term “detonator”, line 3, was previously identified as an “*electronic* detonator”.
2. In regards to claim 10, the term “detonator”, line 2, was previously identified as an “*electronic* detonator”.
3. In regards to claims 12-15, the preamble “The system of claim”, should read as “The *electrically-connected* system of claim”.
4. In regards to claims 17-20, the preamble “The device of claim”, should read as “The *slave* device of claim”.
5. In regards to claim 20, the term “detonator”, line 1, was previously identified as an “*electronic* detonator”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 10, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the current" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the provision" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the background level of current draw noise" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9 and 11-19 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent No. 6,584,907 B2 to Boucher.

In regards to claim 1, Boucher inherently discloses a method of current modulation-based talkback from a slave device to a master device comprising the following steps: a) establishing an electrically connected system that includes a master device (12) and at least one slave device

(16), and has a background level of current draw noise, b) holding the background level of current draw noise in the system low when it is desired that a slave device talkback to the master device, and c) during step b), modulating the current flowing through a slave device such that the modulation corresponds to data desired to be transmitted to the master device, in figures 1A and 1B, column 6 lines 58-64 and line 67, column 7 lines 1-14, column 9 lines 4-13 and lines 36-67, column 10 lines 1-17 and lines 58-67, and column 11 lines 1-10.

Communication signals, which are generated by modulating a voltage in order to produce a coded signal, are invariably identical to a coded signal generated by modulating a current, since current is directly proportional to voltage.

In regards to claim 2, Boucher clearly discloses, that the method further comprises the step of the master device receiving and interpreting the data transmitted in step c), in column 10 lines 1-17.

In regards to claim 3, Boucher clearly discloses, wherein the system has a low voltage state and a high voltage state, and step b) includes the step of holding the voltage level of the system low, in column 10 lines 58-67 and column 11 lines 1-10.

In regards to claim 4, Boucher inherently discloses, wherein the modulation of step c) results in a digital data representation, in the rejection of corresponding parts of claim 1, above.

In regards to claim 5, Boucher clearly discloses, wherein the system further includes a bus (14), and the system includes more than one slave device (18, 20, 22), in figure 1A and column 6 lines 58-64.

In regards to claim 6, Boucher clearly discloses, wherein step b) comprises establishing a limitation in the system to prevent all slave devices, other than a slave device that is talking back

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to the master device, from drawing current from the bus above a predetermined maximum noise level below which accurate reception of talkback data by the master device is ensured, in column 10 lines 58-67 and column 11 lines 1-10.

In regards to claim 7, Boucher inherently discloses, wherein the system is an electronic blasting system and the slave device is an electronic detonator, in the rejection of corresponding parts of claim 1, above.

In regards to claim 8, Boucher inherently discloses, wherein the system further includes a bus (14), the master device is a blasting machine, and the system includes more than one detonator (18, 20, 22), in the rejection of corresponding parts of claim 1, above.

In regards to claim 9, Boucher inherently discloses, wherein step b) comprises establishing a limitation in the system to prevent all detonators, other than a detonator that is talking back to the blasting machine, from drawing current from the bus above a predetermined maximum noise level below which accurate reception of talkback data by the blasting machine is ensured, in column 10 lines 58-67 and column 11 lines 1-10.

In regards to claim 11, Boucher inherently discloses, an electrically-connected system for modulation-based talkback from a slave device to a master device comprising: a) a master device (12), and b) at least one slave device (16) configured and/or programmed to transmit data to the master device through current modulation-based talkback, wherein the system is configured and/or programmed such that the background level of current draw noise in the system is held low when it is desired that a slave device talkback to the master device, in figures 1A and 1B, column 6 lines 58-64 and line 67, column 7 lines 1-14, column 9 lines 4-13 and lines 36-67, column 10 lines 1-17 and lines 58-67, and column 11 lines 1-10.

Communication signals, which are generated by modulating a voltage in order to produce a coded signal, are invariably identical to a coded signal generated by modulating a current, since current is directly proportional to voltage.

In regards to claim 12, Boucher clearly discloses, wherein the system has a low voltage state and a high voltage state, and the system is configured and/or programmed to hold the voltage level of the system low when it is desired that a slave device talkback to the master device, in column 10 lines 58-67 and column 11 lines 1-10.

In regards to claim 13, Boucher clearly discloses, wherein the system further includes a bus (14), and the system includes more than one slave device (18, 20, 22), in figure 1A and column 6 lines 58-64.

In regards to claim 14, Boucher inherently discloses, wherein the system is an electronic blasting system and the slave device is an electronic detonator, in the rejection of corresponding parts of claim 11, above.

In regards to claim 15, Boucher inherently discloses, wherein the system further includes a bus (14), the master device is a blasting machine, and the system includes more than one detonator (18, 20, 22), in the rejection of corresponding parts of claim 11, above.

In regards to claim 16, Boucher inherently discloses, a slave device (16) for use in an electrically connected system including a master device (12) and having a background level of current draw noise, the device configured and/or programmed to talkback to the master device by current modulation, the device further configured and/or programmed to talkback to the master device when the background level of current draw noise in the system is low, in figures 1A and

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1B, column 6 lines 58-64 and line 67, column 7 lines 1-14, column 9 lines 4-13 and lines 36-67, column 10 lines 1-17 and lines 58-67, and column 11 lines 1-10.

Communication signals, which are generated by modulating a voltage in order to produce a coded signal, are invariably identical to a coded signal generated by modulating a current, since current is directly proportional to voltage.

In regards to claim 17, Boucher clearly discloses, wherein the system has a low voltage state and a high voltage state, and the device is configured and/or programmed to talkback to the master device only when the voltage level of the system is low, in column 10 lines 58-67 and column 11 lines 1-10.

In regards to claim 18, Boucher inherently discloses, wherein the system is an electronic blasting system and the slave device is an electronic detonator, in the rejection of corresponding parts of claim 16, above.

In regards to claim 19, Boucher inherently discloses, wherein the system further includes a bus (14), the master device is a blasting machine, and the system includes more than one detonator (18, 20, 22), in the rejection of corresponding parts of claim 16, above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher in view of Prinz.

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In regards to claim 10, Boucher discloses the claimed invention, in column 9 lines 4-13, column 10 lines 58-67, and column 11 lines 1-10, that the limitation, as disclosed in claim 9, above, includes the provision in the detonator of a storage capacitor and a communications interface, but does not disclose that the communication interface includes rectifier bridge diodes.

Prinz teaches in figure 4, column 6 lines 66-67, and column 7 lines 1-6, that a programmable electronic time delay initiator is comprised of a communication interface that includes a spark gap (36), which functions to shunt any electrostatic or other high voltages that appear on the input of the interface, a zener diode (38), which functions to limit the operating voltage presented to a logic circuitry (30), and a blocking diode (40), which functions as a spurious signal suppression in order to block power to the logic circuitry in the event of mis-polarized connection to a power and command source. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ Prinz's technique of employing a communication interface with protective circuitry, in order to achieve the desired effect of providing an electrical safety feature to a programmable electronic initiator, which would protect the delicate integrated circuitry from harmful electrical signals.

In regards to claim 20, see the rejection of claim 10, above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents show the state of the art in the field of Current Modulation-Based Communication from Slave Device.

U.S. Patent No. 6,571,712 B2 to Lebaudy et al.

U.S. Patent No. 6,418,853 B1 to Duguet et al.

U.S. Patent No. 6,173,651 B1 to Pathe et al.

U.S. Patent No. 6,166,452 to Adams et al.

U.S. Patent No. 6,000,338 to Shann

U.S. Patent No. 5,894,103 to Shann

U.S. Patent No. 5,520,114 to Guimard et al.

U.S. Patent No. 5,295,438 to Hill et al.

U.S. Patent No. 5,014,622 to Jullian

U.S. Patent No. 4,674,047 to Tyler et al.

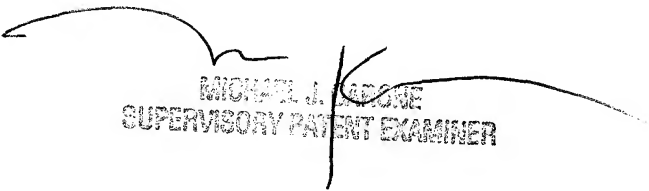
Foreign Patent No. WO 93/18366

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry A. Blackner whose telephone number is 703-305-4799. The examiner can normally be reached on 09:15 - 17:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9326.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5771.

hab
18 December 2003


MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER